

1 This listing of claims will replace all prior versions, and listings, of claims  
2 in the application.

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4 **Listing of Claims:**

5  
6 Claim 1 (Currently amended): A method of synchronizing asynchronous  
7 time-based and motion capture data in a system in which the time-based data and  
8 the motion capture data are transmitted by a server over a network to a client, the  
9 method comprising:

10 retrieving a time-based data stream and a motion capture data stream at the  
11 server, each stream comprising frames of data;

12 variably buffering one of the time-based data stream and the motion capture  
13 data stream at the server to produce two streams having synchronized frames;

14 ~~multicasting~~ receiving separately the two streams at the client; and

15 using the synchronized frames at the client for playback of synchronized  
16 motion capture data and time-based data to a user.

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18 Claim 2 (Cancelled)

19  
20 Claim 3 (Previously presented): The method of claim 1 further including  
21 calculating a difference between delays for the motion capture data stream and the  
22 time-based data stream through the server to determine an amount of variable  
23 buffering for a faster of the two streams.

1           Claim 4 (Original): The method of claim 1 further including transferring  
2 only those data values for a frame that have changed since a last frame was  
3 transmitted.

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5           Claim 5 (Original): The method of claim 1 wherein the network is the  
6 Internet.

7  
8           Claim 6 (Previously presented): The method of claim 1 wherein the  
9 motion capture data is mapped to control the movement of a virtual figure  
10 displayed in a scene at the client.

11  
12           Claim 7 (Previously presented): The method of claim 1 wherein the  
13 motion capture data is generated by a body suit.

14  
15           Claim 8 (Previously presented): The method of claim 1 wherein the  
16 motion capture data includes background data for use in producing a scene at the  
17 server.

18  
19           Claim 9 (Previously presented): The method of claim 1 wherein data  
20 transfer from the server to the client is concurrent with the receipt of the time-  
21 based data stream and motion capture data stream at the server.

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23           Claim 10 (Original): The method of claim 1 wherein the time-based data is  
24 voice data.

1           Claim 11 (Original): The method of claim 1 wherein the synchronized data  
2 frames include one or more data channels, the server transmitting on the network  
3 at a predetermined interval between synchronized data frames a descriptor packet  
4 which describes each channel contained in the synchronized data frames such that  
5 a client may join in progress a multicast of synchronized data frames.

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7           Claim 12 (Previously presented): The method of claim 1 wherein the time-  
8 based data is a pre-recorded audio track and the method further includes  
9 synchronizing playback of the pre-recorded audio track at the server and buffering  
10 of the pre-recorded audio track to allow for coupling with motion capture data  
11 generated in time with the playback of the pre-recorded audio track.

12  
13           Claim 13 (Original): The method of claim 1 further including sequencing  
14 synchronized frames output from the server to the client to provide for ordered  
15 playback of the synchronized frames to a user at the client.

1           Claim 14 (Currently amended): A method of packaging synchronized  
2 frames of three-dimensional motion data and time-based data where each frame  
3 includes one or more channels of data in a system in which synchronized frames of  
4 three-dimensional motion data and time-based data are transmitted by a server over  
5 a network to a client, the method comprising:

6           storing a last data value for each channel in each synchronized frame of  
7 three-dimensional motion data and time-based data transmitted over the network;

8           retrieving new synchronized frames of three-dimensional motion data and  
9 time-based data for transmission over the network; and

10          packaging and transmitting ~~through separate streams~~ over the network only  
11 data for channels having changed data values, wherein the client receives separate  
12 streams of the three-dimensional motion data and the time-based data.  
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14          Claim 15 (Original): The method of claim 14 further including transmitting  
15 a descriptor packet at a predetermined interval over the network, the descriptor  
16 packet including channel descriptors for each channel in the synchronized frames.  
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1           Claim 16 (Currently amended): An apparatus resident on a server for  
2 synchronizing asynchronous time-based and three-dimensional motion data in a  
3 system in which the time-based data and three-dimensional motion data are  
4 transmitted by the server over a network to a client, the apparatus comprising:

5           a data retriever for retrieving a time-based data stream and a three-  
6 dimensional motion data stream at the server, each of the streams comprising  
7 frames of data;

8           a data stream synchronizer for buffering one of the time-based data stream  
9 and the three-dimensional motion stream to produce two streams having  
10 synchronized frames, wherein the two streams are ~~multicast~~ received separate  
11 of one another at the client; and

12           a packetizer for packaging synchronized frames of three-dimensional  
13 motion data and time-based data for use at the client for playback of synchronized  
14 three-dimensional motion data and time-based data to a user.

15  
16           Claim 17 (Currently amended ): The apparatus of claim 16 further  
17 including a multicaster for multicasting the synchronized three-dimensional motion  
18 data and time-based data to clients ~~couple~~ coupled to the network.

1           Claim 18 (Original): The apparatus of claim 16 wherein the packetizer  
2 includes a storage device and a comparator, the storage device for storing data  
3 values last transmitted over the network for each channel in each of the  
4 synchronized frames, the comparator for comparing data values for new frames  
5 with the data values stored in the storage device, the packetizer only packaging for  
6 transmission to the client channel data for channels having changed data values as  
7 determined by the comparator.

8  
9           Claim 19 (Previously presented): A method for playing back time-based  
10 and motion capture data that has been synchronized and received as separate  
11 streams of data comprising:

12               mapping the motion capture data received in one or more of the separate  
13 streams to control the movement of a virtual figure in a scene displayed at a client;  
14 and

15               playing back in synchronization with movement of the virtual figure the  
16 time-based data received in one or more of the separate streams.

1 Claim 20 (Currently amended): A method of synchronizing asynchronous  
2 three-dimensional motion data and audio data at a server computer in a system in  
3 which the three-dimensional motion data and the audio data are transmitted  
4 ~~through separate streams~~ by the server computer to one or more clients, the clients  
5 providing a real time output of synchronized motion and audio data, the method  
6 comprising:

7 retrieving an audio stream ~~of the separate streams~~ including voice data and  
8 a three-dimensional motion data stream ~~of the separate streams~~ including one or  
9 more motion data channels at the server, each stream including frames of data;

10 calculating a delay through the server for a frame of data on each of the  
11 streams;

12 calculating a difference between the delay for the audio stream and the  
13 three-dimensional motion data stream to determine which of the two streams is  
14 faster;

15 variably buffering a faster of the streams to synchronize the audio stream  
16 and the three-dimensional motion data stream resulting in two output streams  
17 having synchronized data frames;

18 packaging the synchronized data frames;

19 multicasting the synchronized data frames to one or more clients over a  
20 network; and

21 at each client computer receiving as separate streams the three-dimensional  
22 motion data and the audio data, using the synchronized data frames for  
23 synchronous playback of the audio and three-dimensional motion data for display  
24 to a user.  
25

1           Claim 21 (Previously presented): The method of claim 1 wherein the  
2 motion capture data is sensor data.

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4           Claim 22 (Previously presented): The method of claim 14 wherein the  
5 three-dimensional motion data is sensor data.

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7           Claim 23 (Previously presented): The method of claim 16 wherein the  
8 three-dimensional motion data is sensor data.

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10          Claim 24 (Previously presented): The method of claim 19 wherein the  
11 motion capture data is sensor data.

12  
13          Claim 25 (Previously presented): The method of claim 20 wherein the  
14 three-dimensional motion data is sensor data.



1 Claim 26 (Currently amended): A method of synchronizing asynchronous  
2 time-based and motion capture data in a system in which the time-based data and  
3 the motion capture data are transmitted by a server over a network to a client, the  
4 method comprising:

5 retrieving a time-based data stream and a motion capture data stream at the  
6 server, each stream comprising frames of data;

7 variably buffering one of the time-based data stream and the motion capture  
8 data stream at the server to produce two streams having time synchronized frames,  
9 wherein the two streams are received separately at the client; and

10 using the time synchronized frames at the client for playback of  
11 synchronized motion capture data and time-based data to a user.

1 Claim 27 (Currently amended): A method of packaging time  
2 synchronized frames of three-dimensional motion data and time-based data where  
3 each frame includes one or more channels of data in a system in which  
4 synchronized frames of three-dimensional motion data and time-based data are  
5 transmitted by a server over a network to a client, the method comprising:

6 storing a last data value for each channel in each time synchronized frame  
7 of three-dimensional motion data and time-based data transmitted over the  
8 network;

9 retrieving new time synchronized frames of three-dimensional motion data  
10 and time-based data for transmission over the network; and

11 packaging and transmitting over the network only data for channels having  
12 changed data values[[]]; and

13 receiving at the client, separate streams of the three-dimensional motion  
14 data and time-based data.

1 Claim 28 (Currently amended): An apparatus resident on a server for  
2 synchronizing asynchronous time-based and three-dimensional motion data in a  
3 system in which the time-based data and the three-dimensional motion data are  
4 transmitted by the server over a network to a client, the apparatus comprising:

5 a data retriever for retrieving a time-based data stream and a three-  
6 dimensional motion data stream at the server, each of the streams comprising  
7 frames of data;

8 a data stream synchronizer for buffering one of the time-based data stream  
9 and the three-dimensional motion stream to produce two streams having time  
10 synchronized frames; and

11 a packetizer for packaging synchronized frames of the three-dimensional  
12 motion data and the time-based data for use at the client for playback of  
13 synchronized three-dimensional motion data and time-based data to a user[.]; and

14 receiving as separate streams the three-dimensional motion data and the  
15 time-based data.

16  
17 Claim 29 (Currently amended): A method for playing back time-based  
18 data and motion capture data that has been time synchronized comprising:

19 receiving as separate streams the time-based and motion capture data;

20 mapping the motion capture data to control the movement of a virtual figure  
21 in a scene displayed at a client; and

22 playing back in synchronization with movement of the virtual figure the  
23 time-based data.

1 Claim 30 (Currently amended): A method of time synchronizing  
2 asynchronous three-dimensional motion data and audio data at a server computer  
3 in a system in which the three-dimensional motion data and the audio data are  
4 transmitted by the server computer to one or more clients, the clients providing a  
5 real time output of synchronized motion and audio data, the method comprising:

6 retrieving an audio stream including voice data and a three-dimensional  
7 motion data stream including one or more motion data channels at the server, each  
8 stream including frames of data;

9 calculating a delay through the server for a frame of data on each of the  
10 streams;

11 calculating a difference between the delay for the audio stream and the  
12 three-dimensional motion data stream to determine which of the two streams is  
13 faster;

14 variably buffering a faster of the streams to synchronize the audio stream  
15 and the three-dimensional motion data stream resulting in two output streams  
16 having time synchronized data frames;

17 packaging the synchronized data frames;

18 ~~multicasting~~ receiving the synchronized data frames as separate streams at  
19 [[to]] one or more client[[s]] computer over a network; and

20 at each client computer, using the synchronized data frames for  
21 synchronous playback of the audio data and the three-dimensional motion data for  
22 display to a user.